

To J. Fondren, KPS Group
Cc
From SDG
Date May 17, 2018
Project Hoover Comprehensive
Plan

Project No. 232690-
01

Transit Considerations

Existing Transit Conditions

Services

1. Hoover is directly served by two fixed route transit services operated by the Birmingham - Jefferson County Transit Authority – MAX.
 - Route 31 – Highway 31 South
 - Serves Hoover from intersection of Hwy 31 South and I-65 south to Galleria
 - Four intermediate stops southbound
 - Six intermediate stops northbound (loops via Lorna Rd)
 - Route 280 – Highway 280
 - Serves Highway 280 corridor
 - Serves areas adjacent Hoover communities – limited service IN Hoover

Figure 1 shows the route map for these two routes.

Figure 1 - Hoover MAX routes - Route 31 and Route 280

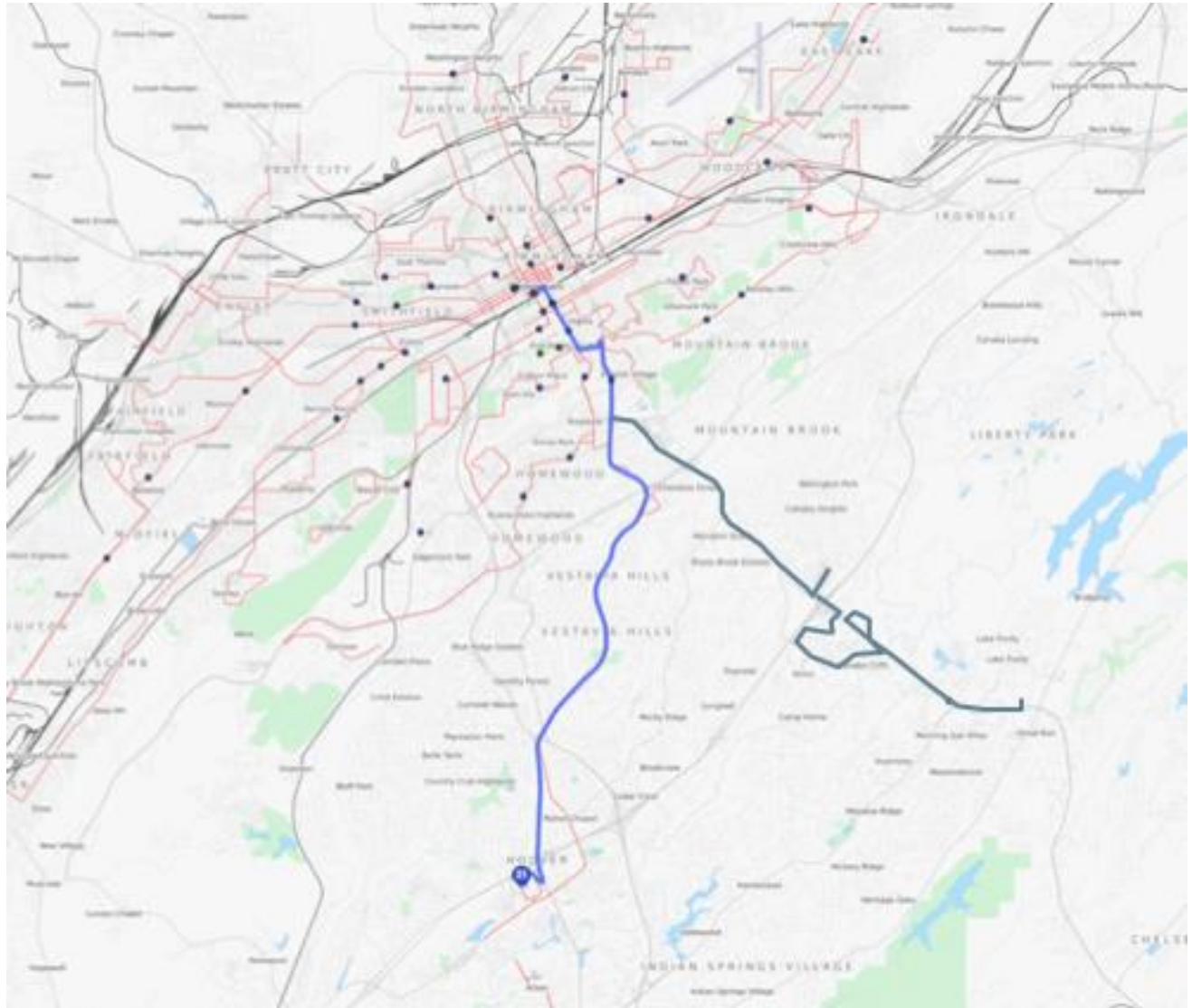


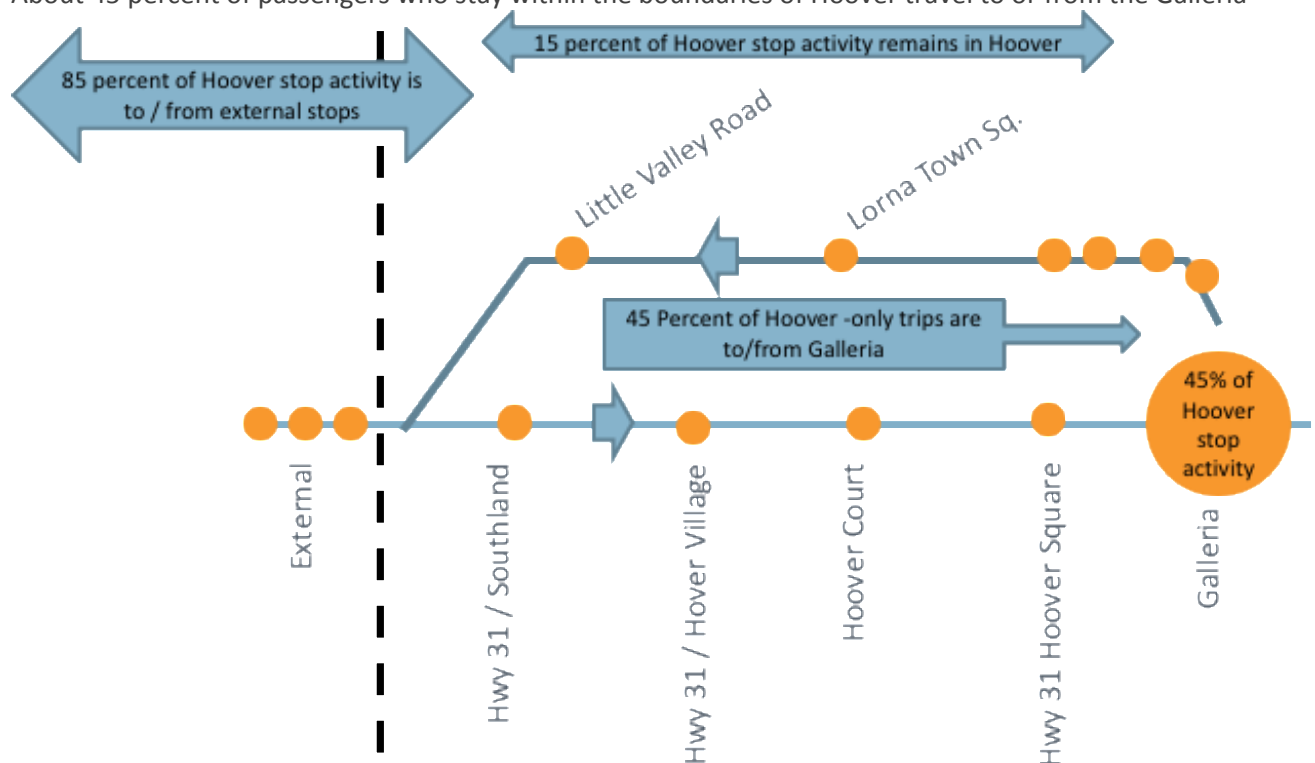
Table 1 shows the general characteristics of these two routes.

Table 1 – MAX Fixed Route Services in Hoover

Route	Weekday Span	Weekday Frequency	Saturday Span	Saturday Frequency	Serves	Travel Time
Route 31 – Highway 31 South	6 am – 7pm	3 am peak trips Mid-morning trip Mid-afternoon trip 2 PM peak trips	6 am – 7pm	3 am trips 1 Mid-day trip 2 PM peak trips	Highway 31 corridor from Central station to Galleria	Approx. 40 mins SB Approx. 45 mins NB
Route 280 – Highway 280	5 am – 9 pm	Hourly service	6 am–1030 pm	Approx. 2 hour service	Highway 280 corridor from Central Station to Brook Highland Plaza	Approx. 60 mins SB Approx. 55 mins NB

Route 31 Detail

2. The route operates on essentially a one-way loop south of I-65, using Hwy 31 southbound to the Galleria and Lorna Road northbound from the Galleria
3. Route 31 has five southbound and six northbound stops, plus the Galleria within the municipal boundaries of Hoover
 - Highest activity stop is Galleria – outbound boardings and inbound alightings (45 percent of activity)
 - About 15 percent of passengers travel completely within the boundaries of Hoover (boarding inbound or alighting outbound). The remainder originate from or are destined to areas outside of Hoover.
 - About 45 percent of passengers who stay within the boundaries of Hoover travel to or from the Galleria



4. Route 31 operates within the boundaries of Hoover for approximately 25 minutes on each trip, for a total of approximately 2.9 vehicle-hours of service per weekday and about 2.1 hours of service per Saturday, or about 70 hours of service per month.
5. Daily boardings total approximately 60 per weekday (9 per trip) and 40 per Saturday (8 per trip)
6. Targeted peak service results in moderate economic performance but at low ridership levels

Issues

There are a number of factors that affect the performance of the routes within Hoover:

- Low service levels:
 - Hourly service on Route 280
 - Limited service on Route 31
- Under-developed pedestrian network
 - No sidewalks on Hwy 31
 - Limited / wrong side sidewalks on Lorna
- High median income
 - Hoover incomes generally are higher than average, which promotes auto ownership and use
- Limited Coverage
 - Route 31 service area covers small portion of central are of City
 - Route 280 provides minimal coverage
- Limited Connectivity
 - Hoover is oriented generally east-west; only routes serve north-south connections
 - Routes are oriented to Downtown Birmingham connections, not Hoover-oriented travel
- Road Network
 - Lack of north-south connectivity except regional highway network
 - Lack of parallel road network
 - Highway/arterials are generally hostile environments with auto-oriented access
 - I-459 and I-65 divide the community; barriers to travel
 - Pedestrian access and crossing
 - Wide cross-sections and high traffic volumes create adverse conditions for pedestrians
- Other
 - Lack of transit culture



Stop Location on Lorna at Lorna Town Square

Emerging Transit Trends

Urban mobility

7. Emerging trend in transportation planning approach

- Multi-modal – focusses on hierarchy from walking for short trips through transit options to auto for longer distance discretionary trips
- Customer-focused
 - Identifying and meeting customer needs
 - Communication technologies
- Effective use of innovative technologies
 - Transportation and communication apps
 - Connected vehicles
 - Autonomous vehicle development

Transportation Network Companies

- Important element of urban mobility trend
 - Uber and Lyft key national players
 - Many regional companies as well
- Focus on on-demand transportation, communication technology and data collections and analytics
- Competition and cooperation with transit agencies
 - Some ridership losses across North America blamed on emergence of TNC
 - 'millennial' market perceived to be a key element of TNC service
 - Focussed on customer expectations
 - Several larger transit systems planning or running pilots with TNCs or using a similar style mobile app
 - Potential for low demand areas or times, first-mile / last-mile feeders and for local area shuttles
 - Initial pilots and demonstrations may be designed as data collection exercises for design of more traditional shuttle services

Autonomous Vehicles

8. Several vehicle manufacturers are actively involved in autonomous vehicle research and development related to transit.

9. Transdev's unnamed prototype and Local Motors's 'Olli' are among the most recognizable autonomous vehicles related to transit service and are being demonstrated in several different environments



10. These vehicles are currently being demonstrated with Level 4 automation – fully autonomous in defined conditions. Level 4 automation would be appropriate for a campus-type environment such as a local shuttle in the Galleria area with defined stops, limited traffic interaction variations (e.g. no merging traffic) and a defined operating area.

Proposed Concepts

Corridor Routes

- Hwy 31 South
 - Potential for effective spine service connecting to neighboring communities and Birmingham center
 - Routing Option 1 - Consider operating both directions via Lorna Rd
 - Less traffic
 - Better pedestrian environment
 - More direct local access
 - Routing Option 2 – Consider operating both directions via Hwy 31, with local circulator
 - More direct
 - Fewer stops and faster trip, in combination with local circulator for local access
 - Routing Option 3 – consider extension to Valleydale Road
 - Expand coverage area
 - Direct corridor service – could operate through Riverchase Parkway East to provide access to employment area
 - Service Option – expand span and frequency
 - Span – increase to all-day service weekday
 - Add hourly evening trips to 10 pm: add 4 trips
 - Frequency: minimum 30-minute peak period service

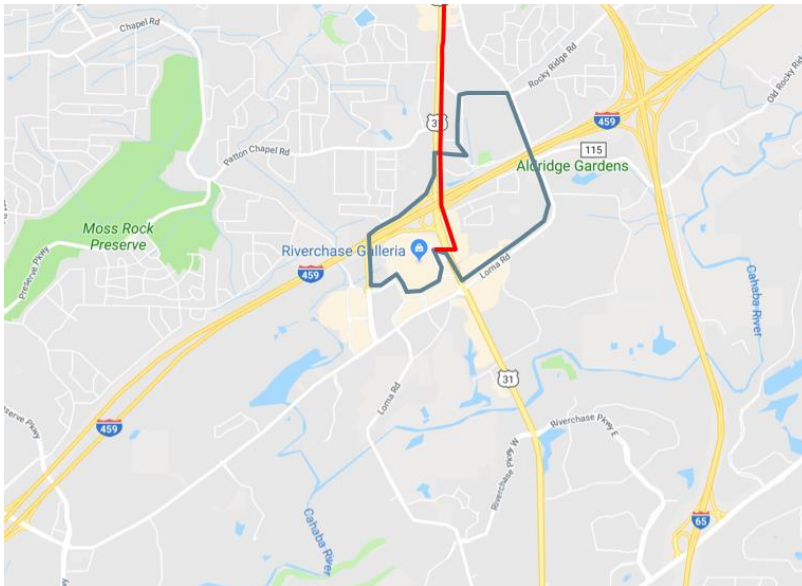
- 6am-9am: add 2 trips
 - 3pm – 7pm: add 5 trips
- Frequency: minimum hourly off-peak service
 - 9am – 3pm: add 5 trips
- Monitor and add peak service based on performance
- Represents 200 percent increase in service over time
 - Stage 1: evening service: 2 trips
 - Stage 2: 30-minute AM/PM service: 7 trips
 - Stage 3: additional midday trips: 5 trips
 - Stage 4: additional evening service: 2 trips
- Additional trips will increase attractiveness and utility of route
 - Added off-peak trips will also support peak trips, increasing peak ridership
 - Increased ridership and revenue
 - Increased ridership unlikely to match increased costs in short term and for off-peak expansion
- Supporting elements
 - Customer experience
 - Enhance sidewalk access in corridor (may be easier on Lorna Road)
 - Additional shelters
 - Enhanced communications
 - Travel time
 - Add q-jump lanes with signal priority to key intersections
 - Hwy 31 intersections ideally suited to q-jump additions
 - Transit signal priority can be implemented with minimal phase impact



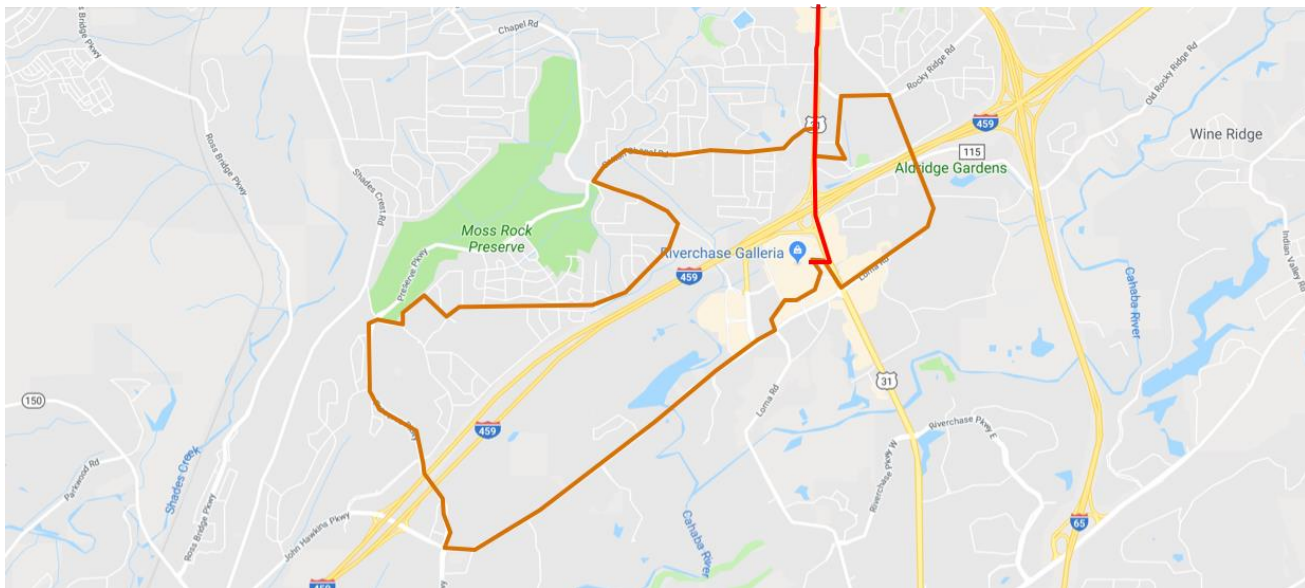
- Bus uses existing right-turn lane to by-pass traffic queue
 - Transit priority signal “I” gives short advance priority to bus
 - Bus uses downstream right turn taper to merge or for access to far-side stop
 - Smaller radius (opposite direction) requires minor modification
- Hwy 280
 - Existing consistent spine service
 - Route options – maintain as spine service – direct routing
 - Consider local shuttle to serve adjacent generators

Local circulator Route

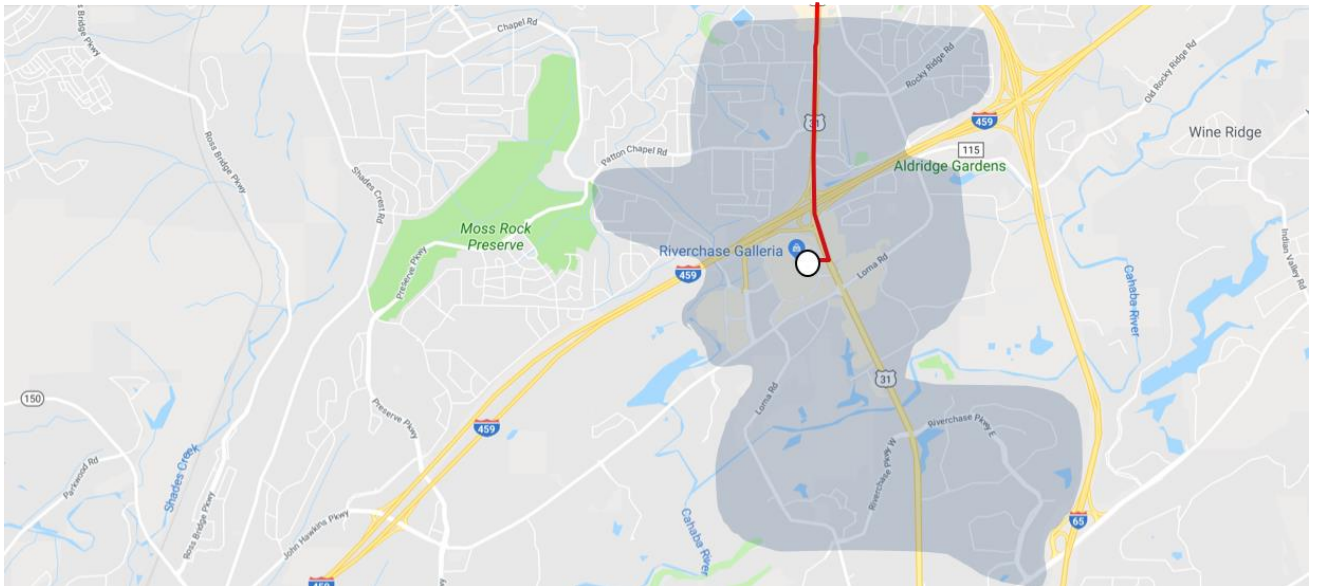
- Benefits:
 - Provides more direct local access while preserving directness of Route 31
 - Provides opportunity to deploy alternative service technologies
- Option 1 – Galleria / Lorna Rd
 - Designed for timed transfer with Route 31
 - Short-term - Short loop to complement direct Hwy 31 service



- Longer-term – expand loop based on development / demand
 - first-mile / last-mile connections to Route 31 South
 - Serves Galleria, municipal center, Lorna Village
 - Provides additional access to Hwy 150 corridor and neighborhoods



- Option 2 – On-demand / Zone bus
 - On-demand service supported by technology app (integrated app or third-party service)
 - Zone bus options – fixed schedule without fixed route (on-demand stops)
 - Lower frequency with one bus
 - Higher frequency with 2 zones / 2 buses (north and south of I-459)

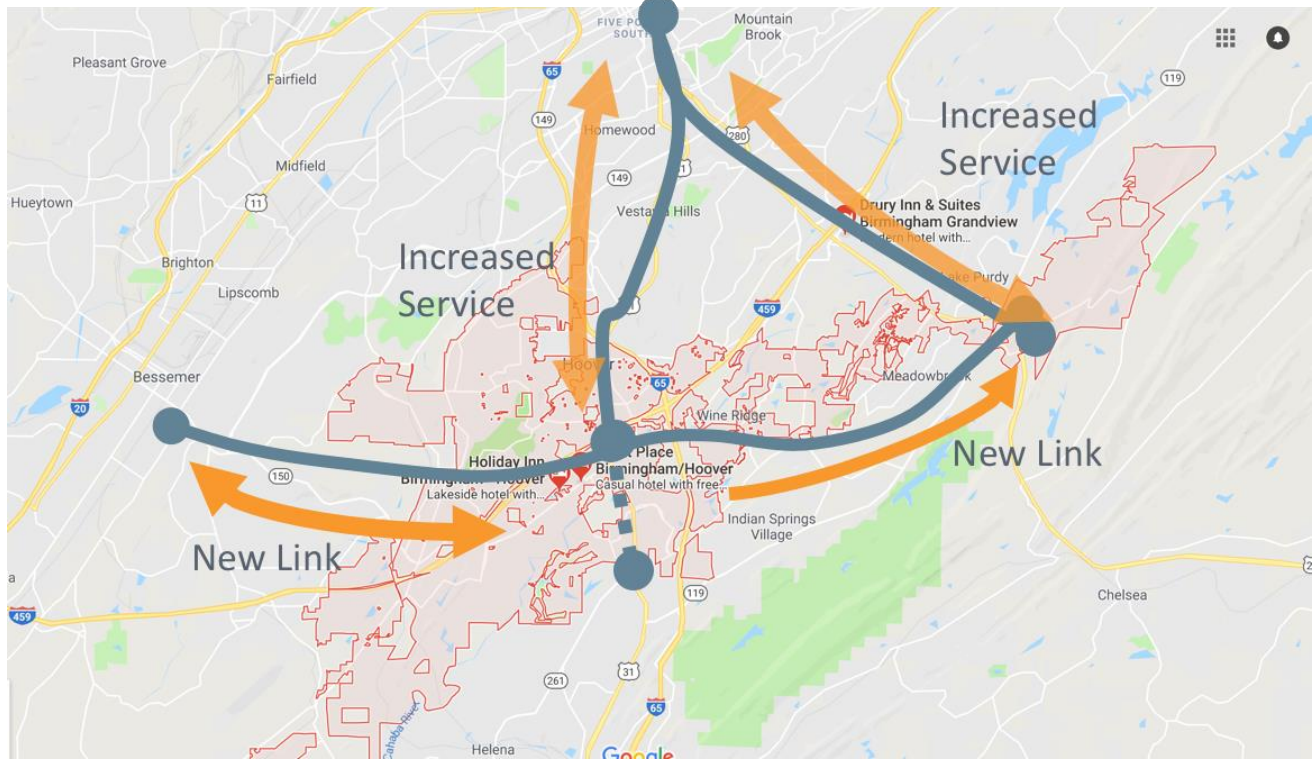


Galleria Shuttle

- Short-term – cutaway ‘airporter’ style vehicle
- Longer-term – autonomous vehicle potential – level 4 automation
- Needs to be on-demand or frequent service for customer convenience

East-west Connector

- Address lack of east-west service and connections
- Expand network connections and utility
- Provide new opportunities and support existing routes
- Option – connect Bessemer community and I-20 corridor services to Highway 31 corridor via Rte 150 – John Hawkins Parkway
- Option – connect Hwy 31 corridor to Hwy 280 corridor via Valleydale Road



Next Steps - priorities

- Increase span and frequency on Route 31
 - Ease of implementation: high
 - Cost: depends on service staging
 - Ridership impact:
- Improve operating conditions for Route 31
 - Identify sidewalk opportunities during repair and renovation
 - Develop prototype q-jump design
 - Identify q-jump text site and implement
- Develop local circulator concept
 - Establish service type and area
 - Coordinate with Hwy 31 improvements
 - Implement first stage

2021 World Games Targets

Infrastructure

- Signal priority at select locations
 - New signal head and controller
 - Intersection signage and striping
 - DOT approval on Rt. 31 and 280
- Q-jumps at selected locations (including use of shoulder lanes)
 - Signage and striping
 - DOT approval on Rt. 31 and 280
- Added shelters
- Use 2021 World Games as pilot

Service

- Limit is affordability
- Minimum 30-minute service all-day should be considered
 - Route 31: represents 300% increase in service (7 trips -> 30 trips)
 - Route 280: represents 100% increase (15 trips -> 30 trips)
 - East-west connector at similar added cost

